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ENGLISH QUESTIONS.

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THIS PAPER CONSIDERS SEVERAL TYPES OF ENGLISH SENTENCES WHICH ARE UTTERED FOR THE PURPOSE OF ELICITING A LINGUISTIC RESPONSE FROM THE HEARER AND WHICH, ON THAT BASIS, CAN BE CLASSED AS QUESTIONS. A SEMANTIC UNIT "PLUS INTERROGATIVE", WHOSE MEANING IS THAT THE SPEAKER REQUESTS NEW INFORMATION FROM THE HEARER, IS SEEN TO PLAY A ROLE IN MORE THAN ONE TYPE OF QUESTION. A QUESTION WITH THE SEMANTIC UNIT "PLUS CONFIRMATIVE" DOES NOT REQUEST NEW INFORMATION, BUT RATHER CONFIRMATION OF SOME MORE OR LESS TENTATIVE KNOWLEDGE WHICH THE SPEAKER ALREADY HAS. QUESTIONS WITH THE UNIT "PLUS ECHO" ARE SEEN AS REPETITIONS OF IMMEDIATELY PRECEDING SENTENCES UTTERED BY THE OTHER PERSON, REPETITIONS INTENDED PRIMARILY AS CHECKS ON THE CORRECTNESS OF PERCEPTION. THE AUTHOR FEELS THAT THESE SEMANTIC OBSERVATIONS MUST BE ACCOUNTED FOR IN A DESCRIPTION OF ENGLISH THAT PRETENDS TO ANY KIND OF ADEQUACY. A NUMBER OF TENTATIVE, LOOSELY FORMULATED RULES ARE SUGGESTED AS POSSIBLE WAYS OF INCORPORATING THESE CONSIDERATIONS INTO A FORMALIZATION OF ENGLISH SEMANTIC STRUCTURE. (AUTHOR/DO)

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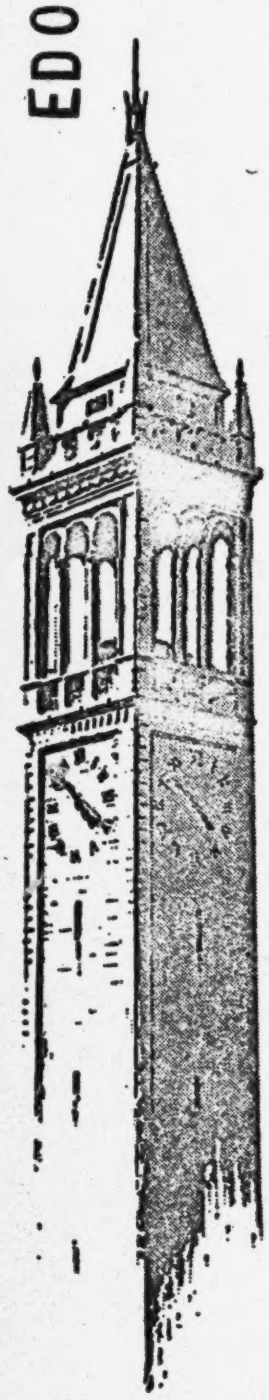

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English Questions*

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The following discussion attempts, in a way that is no more than exploratory, to apply a generative semantic approach (Chafe 1967, 1968) to certain phenomena in the English language which can be brought together under the label 'questions'.* Like Chafe 1968, this paper is adapted from a longer work on generative semantics which is in preparation, and is therefore dependent on a great deal of background discussion which has not been included. Nevertheless, I have again tried to make the paper as self-contained as possible.

'Question' is an informal label which embraces sentences of several different types. What such sentences have in common is, in the words of Katz and Postal (1964:85), the fact that 'semantically, they are somewhat like imperatives in that questions are requests of a special kind. However, unlike imperatives, which, in general, request some form of nonlinguistic behavior or action, questions are concerned primarily with linguistic responses.' It is true, of course, that 'some imperatives are concerned with eliciting linguistic responses, as are, say cheese, tell me your name, etc. However, the linguistic aspect of such imperatives is clearly a function of the nonimperative elements they contain and presents no special problems. Similarly, some answers are nonlinguistic, as are shrugs, gestures, pointing, groans, etc. But the latter may be considered derivative for verbal answers' (Katz and Postal 151). Different types of questions, then, have in common the fact that the speaker utters them with the intention of inducing a linguistic response from the hearer, and that he does so without making use of the imperative form of a verb like say, tell, etc. We shall be concerned with the several different ways of doing this which the English language language provides.

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Preliminaries

Throughout the paper I shall make use of several ad hoc orthographic devices to specify certain important intonational facts which the normal English orthography leaves unrepresented. These devices can be illustrated with the following sentences:

(1) a. Did you see Virginia?

b. Who saw Virginia.

c. Did Virginia buy a car?

d. Did Virginia buy a car.

A word is underlined to indicate that it is the word within which the highest pitch of the sentence begins. More precisely, the highest pitch of the sentence begins on the strongest stressed syllable of the underlined word. A question mark, as in (1a,c), indicates that the pitch remains high up to the point where the question mark is located--in these examples, up to the end of the sentence. A period, as in (1b,d), indicates that the pitch, having reached its highest point in the preceding underlined word, falls from highest to lowest, with this fall beginning immediately after the point of highest pitch. For convenience, I shall refer to the 'question mark intonation' and the 'period intonation'.

Before we look more deeply into the several types of questions, we must give some attention to sentences which are not questions. It will be useful, in particular, for us to consider the general structure of simple declarative sentences, of negative sentences, and of sentences which contain the semantic unit +emphatic. We shall have to consider both the semantic structures which form the basis of such sentences and the postsemantic transformations which operate on them to yield their surface structures.

I shall assume that the semantic structure of every sentence (with a few peripheral exceptions of no moment here) contains a verbal unit (V). In many,

although by no means all sentences, this V is accompanied by a nominal unit (N) in the role of subject (or agent). Frequently it is accompanied by an object N. Any V or N may be modified by an attributive unit (A), of which there are a number of different kinds, but we shall not be too concerned with this possibility here. I shall represent the arrangement of major units in a simple sentence like (2):

(2) Virginia bought a car.

in the manner of Figure 1. Within each of the major units are a number of minor units, inflectional and selectional. I shall arbitrarily represent

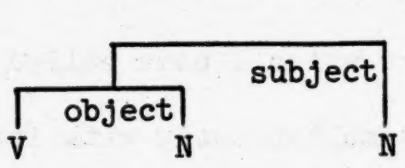


Figure 1

inflectional units to the left of the major unit and selectional units to the right. Below the selectional units there will normally be a lexical unit. In Figure 2 a few of the minor units of sentence (2) have been filled in. Within the V, for example, there is the inflectional unit +past,

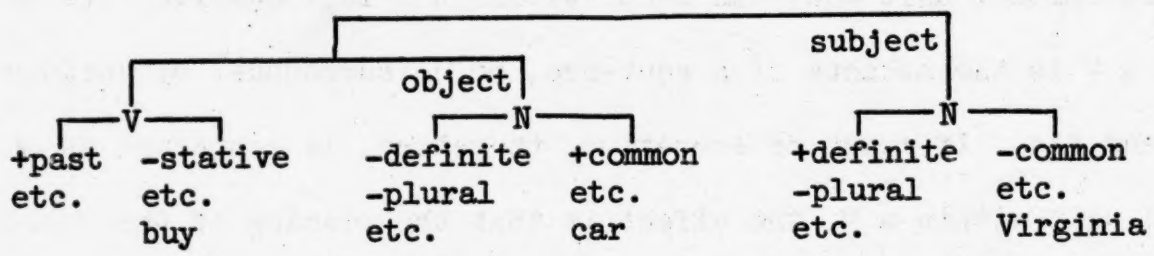


Figure 2

the selectional unit -stative, and the lexical unit buy. (There are other inflectional and selectional units which have not been listed.) Chafe 1968

is a discussion of inflectional units (and a few selectional units) which are found within an N. A sampling of such units is given in Figure 2, along with the lexical units car and Virginia.

The semantic structure sketched in Figure 2 is subject to a series of postsemantic processes which convert it into a surface structure which is, in turn, converted into a phonological structure. Of some importance here will be the process of 'linearization', by which the nonlinear (better, multilinear) structure of Figure 2 is given the unilinearity characteristic of surface structures. In English this process normally entails the placement of the subject N before the V and the object after it, as illustrated in Figure 3. Between Figure 2 and Figure 3 some inflectional units and all selectional units have also been deleted. In a process which I have called 'minor linearization', +past has been positioned to occur simultaneously with its lexical unit buy (to yield bought), while the combination -definite -plural has been positioned to precede the lexical unit car (to yield a car).

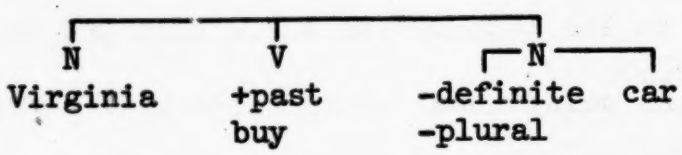


Figure 3

One inflectional unit that can occur within a V is +negative. (I am assuming that a V is the nucleus of a sentence, being surrounded by various satellite N's and A's. If +past or +negative, therefore, is contained as an inflectional unit within a V, the effect is that the meaning of the whole sentence is 'past' or 'negative'.) It is not my intention to discuss negative sentences in detail here; I wish only to mention a few peculiarities associated with the postsemantic representation of +negative. The most striking feature of its postsemantic behavior is that in the initial linearization process

+negative dissociates itself from both the inflectional and lexical components of the V and positions itself between them, thus forcing the V to split into two separate parts, with the inflectional part before it and the lexical part after it. The result of this process is sketched in Figure 4. Subsequently

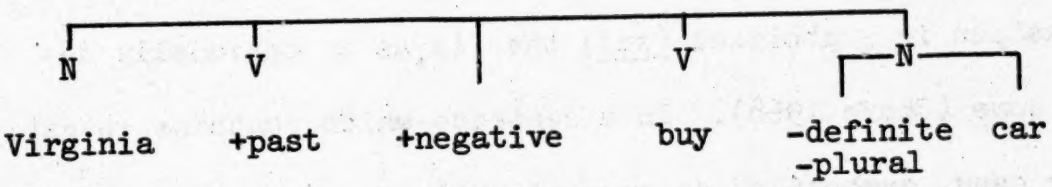


Figure 4

the inflectional component (here consisting of +past), since it no longer has a lexical unit to which it can attach itself, forces the postsemantic creation of the empty lexical unit <u>do</u>. In colloquial English +negative then attaches itself as a suffix to this new lexical item, with the final surface structure result illustrated in Figure 5. Thus we arrive at the phonological form of sentence (3):

(3) Virginia didn't buy <u>a car</u>.

If the inflectional component of the V in the semantic structure contains a semilexical unit like <u>can</u>, the creation of <u>do</u> is not necessary, since

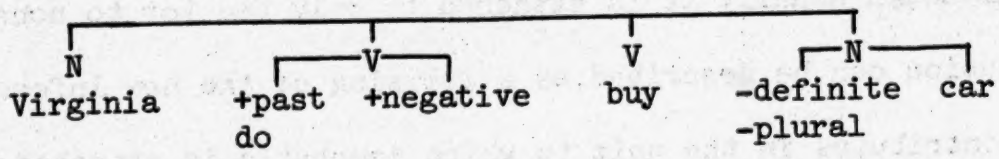


Figure 5

this unit becomes postsemantically a lexical unit to which an inflectional unit like +past can attach itself:

(4) Virginia couldn't buy <u>a car</u>.

The only other peculiarity in the postsemantic representation of +negative that needs to be mentioned here is the fact that the inflectional combination -definite -generic is differently symbolized in a sentence which contains +negative than in a sentence which contains -negative. In a -negative sentence, when there is an N which is either +plural or -count, the -definite -generic inflectional combination is symbolized (sm); that is, as an optionally deletable unstressed some (Chafe 1968). In a sentence which contains +negative it is, on the other hand, symbolized as an optionally deletable unstressed any, which I shall write as ny. Thus we find pairs of sentences like (5a,b) and (5c,d):

(5) a. Virginia bought (sm) peanuts.

b. Virginia didn't buy (ny) peanuts.

c. Virginia bought (sm) beer.

d. Virginia didn't buy (ny) beer.

There is no difference between the inflectional semantic structure which underlies (sm) and that which underlies (ny); the difference is purely a post-semantic one, depending on the presence or absence of +negative.

The semantic unit +emphatic is optionally attachable to any lexical unit, and to some inflectional units. It can be attached to more than one unit in the same sentence, although usually it is attached to only one (or to none). Its semantic contribution can be described as a focusing of the new information which the sentence contributes in the unit to which +emphatic is attached. Thus, in sentence (6a) the speaker assumes that the hearer already knows that someone bought a car; he is supplying the new information that the someone is Virginia:

(6) a. Virginia bought a car.

b. Virginia bought a car.

c. Virginia bought a car.

In (6b) he assumes that the hearer knows Virginia did something in relation to a car; he is informing the hearer that what Virginia did was to buy one, not borrow one, or something else. In (6c) he is telling the hearer, who knows that Virginia bought something, that it was a car which she bought. It is evident from these sentences that the phonological symbolization of +emphatic is through the assignment of the highest pitch of the sentence to the symbolization of the emphasized unit, precisely the phenomenon I have been indicating by underlining the word concerned.

It is important to realize, however, that sentence (6c) is ambiguous. It can just as well be a sentence which does not contain +emphatic at all. The reason is that the unmarked intonation of an English sentence gives it the highest pitch on the last word to contain a strongly stressed syllable--the word car in the sentences of (6). Some words, such as prepositions and pronouns, may not contain a strongly stressed syllable naturally, in which case the highest pitch will occur within the last word to contain such a syllable (cf. Stockwell 1960:362). Sentence (7a), for example, is the unmarked version of that sentence. The pronoun me can, however, be semantically +emphatic, in which case the result is (7b):

(7) a. Virginia bought a car for me.

b. Virginia bought a car for me.

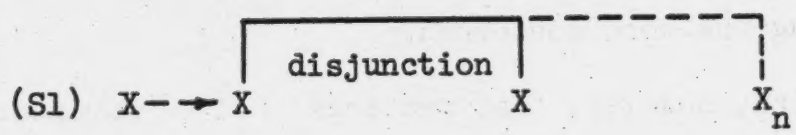
Both (6c) and (7a), then, are ambiguous, for they may contain no occurence of +emphatic or they may contain +emphatic attached to car. It is impossible

to tell from the phonology which semantic structure was intended, although the speaker will, in fact, have intended either the one or the other.

With this brief discussion of sentences which are not questions as a background, we can begin to shift our attention toward sentences which are.

Disjunctive Questions

Two or more major units of the same kind (N, V, or A) may be semantically related by 'disjunction' (actually a special case of 'coordination', but that need not concern us here). A semantic structure rule such as (S1) will serve to introduce this possibility:



'X' stands for either N, V, or A, but only one of them in any one application of the rule. 'X_n' indicates that there is no theoretical limit to the number of terms in the disjunction. Here, however, we shall be chiefly concerned with disjunctions in which X is V, and in which there are only two terms; in other words, with the configuration of Figure 6. Even more narrowly, we shall

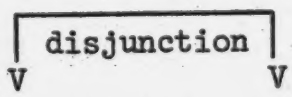


Figure 6

be concerned with cases in which (S1) is the first rule to apply to either V, so that the disjunction is superordinate to any further expansions which these V's may undergo. We shall be dealing, that is, with the disjunctive relation as it is found between what would otherwise be two independent sentences.

Suppose, for example, that one V of the disjunction is further expanded in a manner which would produce sentence (8a), and that the other V is further expanded so as to produce (8b). If these two sentences have been superordinately related by disjunction, the result is (8c):

(8) a. Virginia bought <u>a car</u>.

b. We have to <u>walk</u>.

c. Either Virginia bought <u>a car</u>? or we have to <u>walk</u>.

The basic outline of the semantic structure of (8c) can be sketched as in Figure 7. It may be noted that disjunction has more than one postsemantic reflex in a sentence like (8c). The element <u>either</u> appears before the first

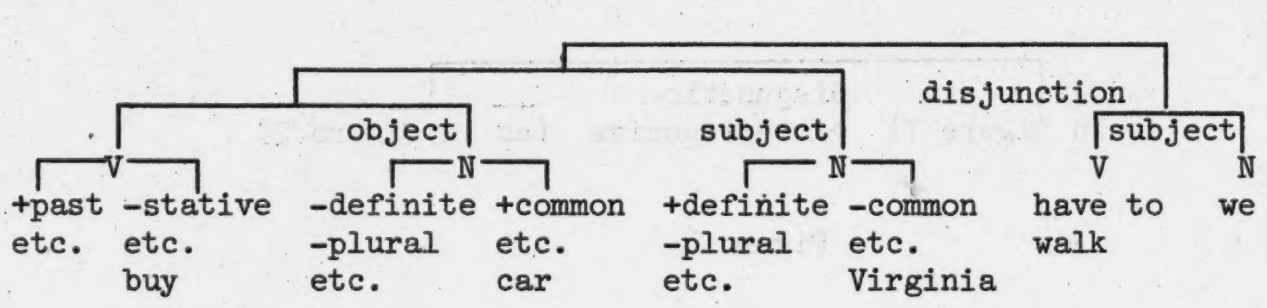


Figure 7

of the two expanded V's, and the element <u>or</u> before the second. Furthermore, however, the first part ends with the question mark intonation: the pitch remains high to the end of <u>car</u>. It resumes a lower position on <u>or</u>, as at the beginning of a new sentence, and the intonation of the second part is like that of (8b). Both these factors, then--the addition of <u>either</u> ... <u>or</u> and the question mark intonation at the end of the symbolization of the first disjunct--are surface structure consequences of disjunction under these circumstances.

Of interest here is the fact that disjunction, when it is not subordinate to any other semantic axis, may be specified as +interrogative:

(S2) disjunction —➤+interrogative/not subordinate

The nonsubordinate environment must be specified because, for example, a semantic structure like that underlying sentence (9) does not allow the disjunction to be +interrogative:

(9) In the morning either Virginia buys a car? or we have to walk.

In (9) in the morning is attributive to the entire remainder of the sentence, so that the disjunction is subordinate to the attribution.

If we now specify the disjunction in Figure 7 as +interrogative, as rule (S2) allows, we obtain the semantic structure of Figure 8. This is the

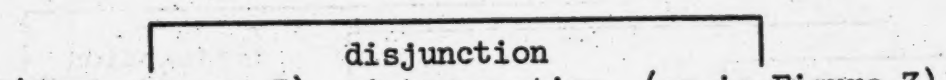


Figure 8

structure which underlies sentence (10):

(10) Did Virginia buy a car? or do we have to walk.

The meaning of +interrogative is that the speaker requests the hearer to provide him with new (and true) information of a sort which is delimited by the remainder of the sentence. When +interrogative is attached to a disjunction, as in Figure 8, the entire sentence is a request that the hearer provide information as to which of the two (or possibly more) terms of the disjunction accords with his knowledge of the facts. In effect, sentence (10) asks the hearer to say whether sentence (8a) or sentence (8b) is true. The hearer is expected to respond by repeating either (8a) or (8b); the question has

limited him to a choice of two responses. He might, of course, evade the expected answer by saying neither or both, but that would not be what the questioner intended.

We may note the postsemantic consequences of the presence of +interrogative in Figure 8. For one thing, the either which appears as a reflection of the disjunction in (8c) is not present in (10), so that +interrogative must either lead to its deletion or inhibit its introduction in the first place. Actually, sentences with 'indirect questions' like (11):

(11) I wonder whether Virginia bought a car? or we have to walk.

suggest that either is first converted into whether in the presence of +interrogative, and then subsequently deleted when the question is a 'direct' one. We will not be dealing with indirect questions here, and it will be enough for us to note that the either which is one of the postsemantic reflexes of disjunction does not appear in the surface structure when the disjunction is specified as +interrogative. More interesting, and more strikingly and consistently a mark of the presence of +interrogative, is the effect which that unit has on the postsemantic linearization process. What happens during linearization is that the inflectional component of the V is detached from its lexical component and placed before the subject, whereas normally the subject is linearized to precede the entire V. For example, in the presence of +interrogative the semantic structure sketched on the left of Figure 9 is linearized as the structure on the right. The inflectional component of the V, containing

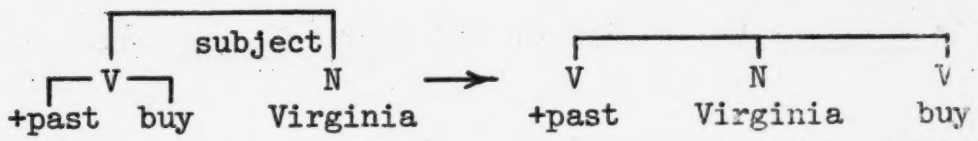


Figure 9

+past (and other units not listed here) is separated from the lexical component containing buy and placed before the subject, Virginia. As a consequence +past is left with no lexical unit to which it can attach itself. If a semilexical unit like can were present, it would now become a lexical unit for this purpose. In the present case, as was also true in the postsemantic development of +negative as described above, the semantically empty lexical unit do is added, yielding the sequence did Virginia buy in sentence (10). The same special linearization triggered by +interrogative yields the sequence do we have to walk in the second part of (10). This splitting of the inflectional and lexical components of the V around the subject is the most characteristic postsemantic representation of +interrogative. (The subject which plays a role in this process is often not the semantic subject, but one that has been arrived at through earlier postsemantic processes which have subjectivized various semantic nonsubjects.) Once +interrogative has served to trigger the splitting of the V around the subject, it can be considered to be deleted. The question mark intonation at the end of the first part of sentence (10) can be regarded as a symbolization of the disjunction, not of +interrogative.

Sentences (8a) and (8b) have very little in common. It is more often the case that sentences related in a disjunction contain one or more major units which are identical:

(12) a. Virginia bought a car.

b. Sylvia borrowed a car.

c. Either Virginia bought a car? or Sylvia borrowed one.

d. Did Virginia buy a car? or did Sylvia borrow one.

(In (12c,d) the pitch rises on the first syllable of Sylvia, but does not begin falling until the first syllable of borrow(ed), the underlined word closest

to the period.) To say that major units are 'identical' means here that the objects of (12a) and (12b) contain the same lexical, selectional, and inflectional units. One way of representing this identity is as in Figure 10, where the broken line connects the two identical N's. (To save space, I have not

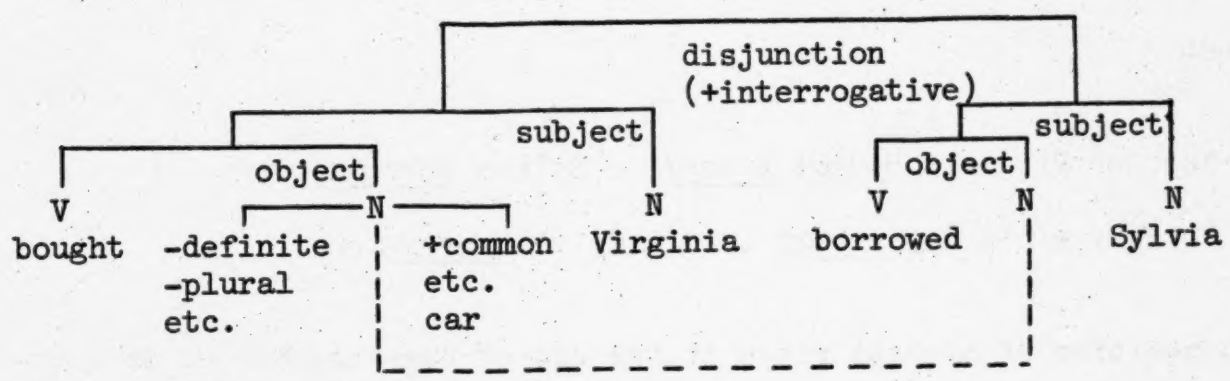


Figure 10

spelled out the minor units of the V and the subject N. These units are listed only once for the recurrent object N.) Normally, when the same major unit appears more than once, either in the same sentence or in adjacent sentences, part of it is postsemantically deleted in all but one of its occurences. Typically the occurrence in which deletion does <u>not</u> take place is that which is first in the postsemantic linear order, although the situation is actually more complicated (cf. Langacker 1966, Ross 1967). If part of an N is deleted, the result is a surface structure pronoun like the word <u>one</u> in (12c,d). The form of the pronoun is determined by the undeleted elements, including -definite, -generic, and -plural in the present case.

There is another important observation to be made concerning (12c,d), however. The parts of (12a) and (12b) which are <u>not</u> identical are the V and the subject N. In (12c,d) these parts are +emphatic. There seems to be a good reason why they should be. The presence of +emphatic means that the new information contained in the sentence (in the case of a question, the new

information requested from the hearer) is concentrated in the units to which +emphatic is attached. In (12d), for example, the issue to be resolved by the hearer is Virginia's buying vs. Sylvia's borrowing. The questioner says that he knows a car to have been the object in either case. This introduction of +emphatic into the semantic structure is obligatory; the sentences of (13) are impossible:

(13) a. *Either Virginia bought a car? or Sylvia borrowed one.

b. *Did Virginia buy a car? or did Sylvia borrow one.

(The unmarked position of highest pitch at the end of these sentences is automatically within borrow(ed) rather than the pronoun one.) Perhaps we can formalize this obligatory occurrence of +emphatic in some such way as the following. Given a configuration like that of Figure 11, where two sentences

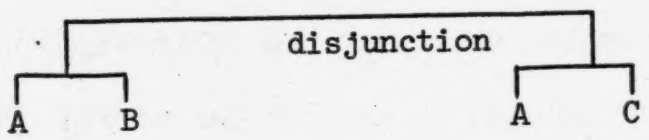


Figure 11

are related by disjunction, and A represents the parts of the sentences which are identical (A not being null), while B and C represent the parts which differ, then semantic structure rule (S3) is obligatory:

(S3) $\begin{pmatrix} B \\ C \end{pmatrix} \longrightarrow$ +emphatic

That is, both B and C must be +emphatic. B and C may, as in (12c,d), consist of several major units. For an example where B and C consist of a single major unit each, we can look to the sentences of (14):

(14) a. Virginia bought <u>a car</u>.

b. Sylvia bought <u>a car</u>.

c. Either <u>Virginia</u> bought a car? or <u>Sylvia</u> did.

d. Did <u>Virginia</u> buy a car? or did <u>Sylvia</u>.

The basic semantic structure which underlies (14c,d) is sketched in Figure 12, where +emphatic has been added in accordance with (S3).

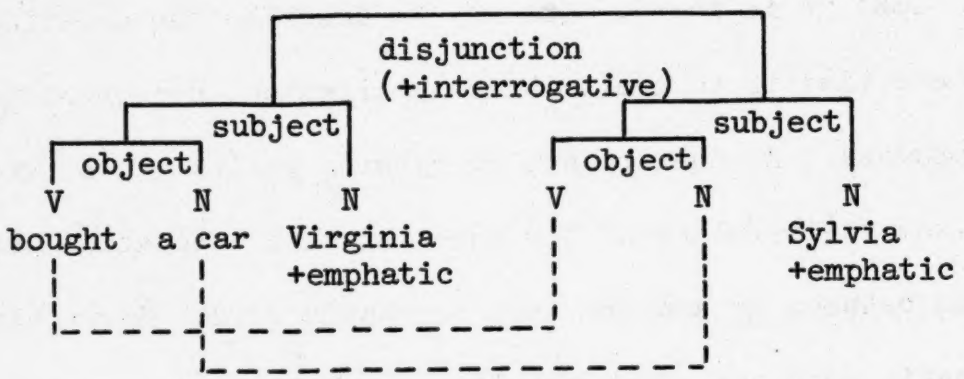


Figure 12

Both the V and the object N are identical in the two parts of this disjunction. In this case pronominalization (which is optional) deletes the object entirely, and everything except the inflectional component of the V. As usual, <u>do</u> is added for this inflectional component to attach itself to, yielding the <u>did</u> in the second parts of (14c,d).

There is, however, something else that can happen when B and C consist of a single major unit each, as illustrated by the sentences of (15):

(15) a. Either <u>Virginia</u>? or <u>Sylvia</u> bought a car.

b. Did <u>Virginia</u>? or <u>Sylvia</u> buy a car.

Here the postsemantic deletion of elements in the semantic structure has followed a different course from that which led to (14c,d). The difference between (14d) and (15b) (or between (14c) and (15a)) seems to be nothing more

than a choice between two deletion routes. Sentences like (15b) are probably the more frequent of the two types, and need not, of course, involve a difference of subjects:

(16) a. Did Virginia buy a car? or a bicycle.

b. Did Virginia buy? or borrow a car.

In (16a) it is the object which is different in the two parts of the disjunction, while in (16b) it is the V. One way to describe the deletions responsible for (15) and (16) is to posit their application subsequent to the linearization process. At that point, everything positioned between the first +emphatic word and the terminus of the question mark intonation is deleted, as is everything between or and the last +emphatic word. Everything before the first +emphatic word and after the last +emphatic word remains undeleted. Note the deleted portions in (17):

(17) a. Did Virginia (buy a car) ? or (did) Sylvia buy a car.

b. Did Virginia buy a car? or (did Virginia buy) a bicycle.

c. Did Virginia buy (a car) ? or (did Virginia) borrow a car.

It should be pointed out that (15b) and (16a,b) are quite different from the questions of (18), which are examples of a type to be discussed momentarily:

(18) a. Did Virginia or Sylvia buy a car?

b. Did Virginia buy a car or a bicycle?

c. Did Virginia buy or borrow a car?

The difference can be brought out, for example, by the fact that the answer expected for (15b) is either Virginia (bought a car) or Sylvia (bought a car). For any of the sentences of (18) it is yes or no.

The sentences which are related by a disjunction may be completely identical from a lexical standpoint; the only difference between them may be an inflectional one. For example, (19a) and (19b) differ only in that the former has a V which is inflected as progressive while the V in the latter is inflected as perfective. (These are poor, but traditional terms for the semantic units involved. Actually there are ambiguities in (19a,b), but they need not concern us here.)

(19) a. Virginia is buying a car.

b. Virginia has bought a car.

c. Either Virginia is buying a car? or she has bought one.

d. Is Virginia buying a car? or has she bought one.

Of particular interest from the point of view of questions, however, are disjunctions in which the related sentences differ only with respect to the ±negative distinction; that is, in which one sentence is -negative and the other is identical with the first, except that it is +negative:

(20) a. Virginia bought a car.

b. Virginia didn't buy a car.

c. Either Virginia did buy a car? or she didn't.

d. Did Virginia buy a car? or didn't she.

Rule (S3) specified that the element by which the two parts of the disjunction differ must be +emphatic. When +negative is made +emphatic in the second parts of (20c,d), it would, in a less colloquial style of speech, be reflected as a high pitched not:

(21) a. Either Virginia did buy a car? or she did not.

b. Did Virginia buy a car? or did she not.

In more normal speech, however, +negative is suffixed to the postsemantic do, and the word didn't is the one on which the pitch rises in (20c,d). -Negative usually has no overt symbolization. When it is +emphatic, however, it shows up as emphasis on the inflectional component of the V, as on the word did in (20c,d). Here, however, we very frequently find a partial exception to rule (S3). We may say that if the B of Figure 11 is -negative and the C is +negative, we have the option of making only C +emphatic. That is, -negative need not be +emphatic when we have the special case of Figure 11 shown in Figure 13. We might state this

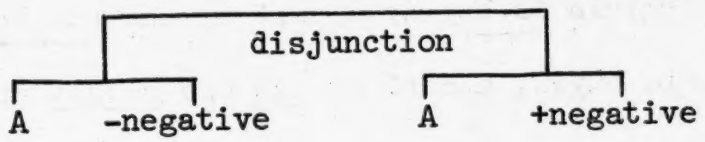


Figure 13

possibility with a rule like (S4):

(S4) -negative → -emphatic/Figure 13

which optionally, in this environment, removes one of the +emphatic units assigned by (S3). Probably (S4) is related to the fact that -negative is universally 'unmarked', and for that reason can be exempted from emphasis. The result of (S4) is illustrated in (22):

(22) a. Either Virginia bought a car? or she didn't.

b. Did Virginia buy a car? or didn't she.

When the disjunction is +interrogative, but not otherwise, further deletion is possible. The postsemantic elements following the or may be reduced to nothing except the reflex of the +emphatic +negative element, a high pitched not:

(23) a. Did Virginia buy a car? or not.

b. Did Virginia buy a car? or not.

There appears, however, to be a semantic unit in all these sentences we have just been considering to which we have not yet given recognition. In (20c,d) and in the sentences of (21), (22), and (23) the speaker is communicating a certain amount of impatience regarding the information he has so far received. It would appear that he has been given reason to believe that (20a) is true, but that he has also been given reason to believe that (20b) is true. Since they cannot both be true, he is confronted with a contradiction. In those sentences above which contain +interrogative he is, it seems to me, expressing impatience over the contradiction and at the same time asking the hearer to resolve it by saying whether it is (20a) or (20b) which is correct. We shall see momentarily that this +impatient semantic unit need not be present. To allow for the cases where it is present, however, we can make use of a semantic structure rule like the following:

(S5) disjunction ⟶ +impatient/Figure 13

That is, a disjunction is further specified as +impatient if the situation pictured in Figure 13 obtains. The postsemantic consequences are as illustrated in (20c,d), (21), (22), and (23).

Rule (S5) by itself implies that a disjunction must always be +impatient under the circumstances specified by Figure 13. But that is not the case. Here we have finally reached the semantic structure of sentences which are traditionally thought of as ordinary 'yes or no' questions. Sentence (24) is an example:

(24) Did Virginia buy a car?

What is hypothesized as the semantic structure of this sentence is outlined in Figure 14. This Figure conforms to the structural description provided

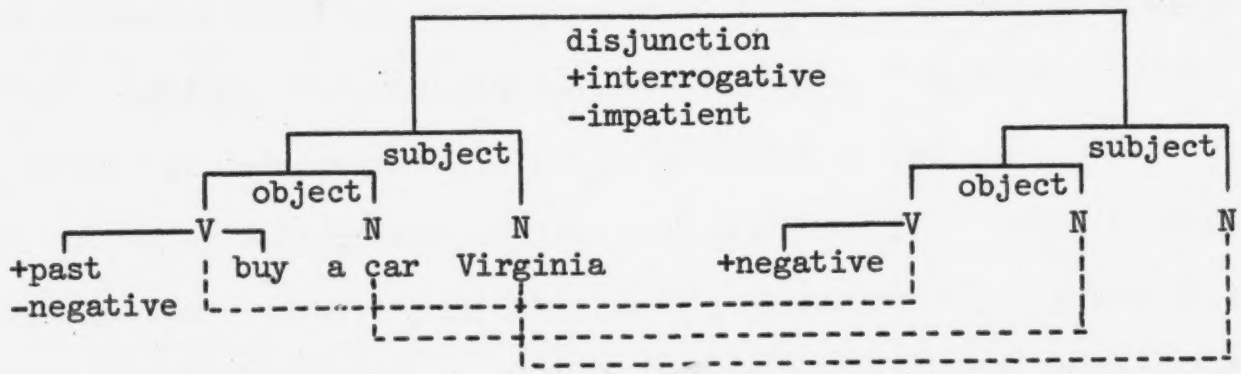


Figure 14

by Figure 13: the two parts of the disjunction are identical except for the ±negative difference in the V. Sentence (24) is not, however, +impatient, as rule (S5) would require without some further provision. The -impatient character of (24) can be provided for with rule (S6):

(S6) +impatient $\longrightarrow$ -impatient/+interrogative

That is, what would otherwise be +impatient may optionally be -impatient if the disjunction is +interrogative. If this option is not chosen, the result is (20d), (21b), (22b), or (23). If it is chosen, the result is (24). If a disjunction is -interrogative, the configuration of Figure 13 must be +impatient, as in (20c), (21a), or (22a). There is no -interrogative disjunction completely parallel to (24); that is, -impatient. Another fact about (24) is that neither -negative nor +negative can be +emphatic within it. In addition to rule (S4), therefore, we need the obligatory rule (S7):

(S7) ±negative $\longrightarrow$ -emphatic/-impatient

That is, when the disjunction is -impatient, both -negative and +negative must be -emphatic. (S4) permitted an optional modification of (S3); (S7) requires the complete reversal of (S3) under the circumstances indicated.

The postsemantic effect of a disjunction like that illustrated in Figure 14--one that is +interrogative and -impatient and differs only by the presence of ±negative in the disjuncts--is the complete deletion of the second disjunct, including the or which otherwise symbolizes a disjunction. It is as if the -emphatic character of +negative results in the complete disappearance of the disjunct which contains it. Sentence (24) exhibits the usual symbolization of the first part of a sentential disjunction by the question mark intonation, as well as the usual symbolization of +interrogative by the intrusion of the subject between the inflectional and lexical components of the V.

An interesting feature of disjunctive questions which are based on the configuration of Figure 13 is their behavior with respect to the postsemantic sm/ny alternation. We noted above that the inflectional combination -definite -generic in an N that is also either +plural or -count is represented by (sm) when V contains -negative, but by (ny) when V contains +negative. In effect, a sentence like (25) contains both -negative and +negative at the same time. As a consequence of this, apparently, the choice between sm and ny is random in such a sentence:

(25) a. Did Virginia buy (sm) peanuts?

b. Did Virginia buy (ny) peanuts?

This same free variation extends to the other +interrogative disjunctions in which the only distinction is the ±negative one:

(26) a. Did Virginia buy (sm) peanuts? or didn't she.

b. Did Virginia buy (ny) peanuts? or didn't she.

that is, to those which are +impatient. It does not, however, extend as far as the -interrogative disjunctions:

(27) a. Either Virginia bought sm peanuts? or she didn't.

b. *Either Virginia bought ny peanuts? or she didn't.

This last fact suggests perhaps that the postsemantic free variation in (26) is by analogy to sentences like (25), since otherwise it would be expected in (27) as well. It may be noted that disjunctive questions which are not based on the ±negative distinction (do not conform to Figure 13) do not exhibit the free variation between sm and ny:

(28) a. Either Virginia? or Sylvia bought sm peanuts.

b. *Either Virginia? or Sylvia bought ny peanuts.

+Negative is in no way present in (28), as it is in (25) and (26).

A subvariety of the kind of question exemplified in (24) is illustrated by the following:

(29) Didn't Virginia buy a car?

This sentence carries an additional meaning over and above that of (24). The speaker is communicating that recent evidence (often, though not necessarily, something the hearer just said) suggests that the question will elicit a negative answer, although previously the speaker would have expected it to elicit an affirmative one. Katz and Postal (1964:97) described this meaning in the following terms: 'Something in the context has indicated that the activity being "questioned" did not occur, while the questioner up till then had reason to believe it did.' Given a structural description like that of Figure 15,

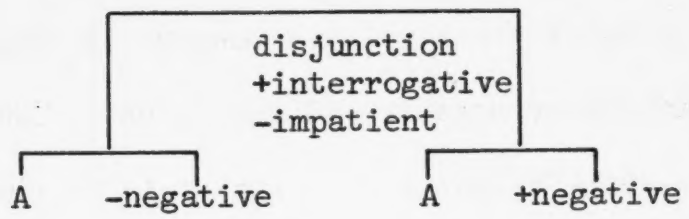


Figure 15

rule (S8) can be used to introduce into the disjunction a new semantic unit, which I shall term +surprised:

(S8) +interrogative ⟶ +surprised/Figure 15

The surface structure of sentence (29) differs from that of (24) only in showing the negative suffix attached to the initial did. One way to arrive at this surface structure would be to delete the first part of the disjunction rather than the second part, as was the case in (24). This device, however, would still leave the intonation of (29) unexplained. It seems preferable to say that (29) is arrived at in the same way as (24), but that +surprised takes on the same postsemantic representation as +negative.

Although, as was specified in rule (S7), both -negative and +negative must be -emphatic in a -impatient question like (24) or (29), there is no reason why other elements in these questions cannot be +emphatic. In (30a) the object N is +emphatic, in (30b) the V, and in (30c) the subject N:

(30) a. Did Virginia buy a car?

b. Did Virginia buy a car?

c. Did Virginia buy a car?

Of course, (30a) is ambiguous, since it is impossible to tell from the phonology whether the object is +emphatic or not. The presence of +emphatic in questions like these means that the speaker knows the answer to be affirmative with some

lexical unit in the position of the +emphatic one; he is asking the hearer to say whether it is affirmative or negative with this one. For example, in (30c) the speaker knows that someone bought a car, but wants to know whether Virginia did.

The same meaning is present in the sentences of (31), where +emphatic is present with the same items:

(31) a. Did Virginia buy a car.

b. Did Virginia buy a car.

c. Did Virginia buy a car.

This time there is no ambiguity in (31a); the object can only be +emphatic. Phonologically, the difference between these sentences and those of (30) is that the pitch falls immediately after it is reached in the underlined word (as indicated by the period). This difference signals the presence of a semantic unit in (31) which is absent from (30). The meaning of this new unit appears to be that the speaker is suggesting that this particular lexical unit might (or might not) be included in a list of lexical units in this position for which the sentence is true. In (31a) a car is suggested for inclusion in the list of things which Virginia is known to have bought. In (31b) the speaker knows that Virginia did several things in relation to a car, and wants to know whether buying a car was one of them. In (31c) he knows that various people bought cars, and wants to know whether Virginia was included. (On the other hand, in (30c) only one person may have bought a car, and the speaker wants to know whether that person was Virginia. The other meaning--that there were several people who bought cars--is not ruled out in (30c), which is less specified, but it is the only meaning possible for (31c). I shall give this

new unit in (31) the label +item. It can be introduced into the semantic structure by a rule like the following:

(S9) +emphatic ⟶ +item/Figure 15 (-surprised)

That is, a lexical unit which is +emphatic may be further specified as +item in the configuration of Figure 15. This can happen only if the question is -surprised--if the option provided for in (S8) is not chosen. Although sentence (32) appears phonologically to be the +surprised counterpart of (31c), it is not so semantically; its meaning is of a kind which we have not yet encountered.

(32) Didn't Virginia buy a car.

Figure 16 provides a summary of the principal types of disjunction which have been discussed in this section, with an example of each. In the first row of the matrix a plus indicates that the disjunction is +interrogative. In the second row the plus in the third and fourth columns indicates that the units which differ in the two parts of the disjunction (B and C in Figure 11) are +emphatic; the -/+ designation in the fifth and sixth columns indicates that B is -emphatic while C is +emphatic; and the plus in the last two columns indicates that some unit held in common between the two parts (in the examples, Virginia) is +emphatic. The number of columns could be extended considerably by adding +emphatic in other places. A plus in the third row indicates that B is -negative while C is +negative (again with reference to Figure 11). The fourth and fifth rows are self-explanatory. A plus in the sixth row indicates that the unit which is +emphatic is also +item.

Questions with Lexical Gaps

We noted above that the presence of +interrogative in semantic structure

1. interrogative	2. emphasis	3. ±negative	4. impatient	5. surprised	6. item	
-	-	-	-	-	-	Either Virginia bought <u>a car</u>? or we have to <u>walk</u>. (8c)
-	-	-	-	-	-	Did Virginia buy <u>a car</u>? or do we have to <u>walk</u>. (10)
-	+	-	-	-	-	Either <u>Virginia</u> bought a car? or <u>Sylvia</u> did. (14c) Either <u>Virginia</u>? or <u>Sylvia</u> bought a car. (15a)
+	+	-	-	-	-	Did <u>Virginia</u> buy a car? or did <u>Sylvia</u>. (14d) Did <u>Virginia</u>? or <u>Sylvia</u> buy a car. (15b)
+	+/-	+	+	-	-	Either Virginia bought <u>a car</u>? or she <u>didn't</u>. (22a)
+	+/-	+	+	-	+	Did Virginia buy <u>a car</u>? or <u>didn't</u> she. (22b)
+	+	+	-	-	+	Did Virginia buy <u>a car</u>? (24)
+	+	+	-	-	+	Didn't Virginia buy <u>a car</u>? (29)
+	+	+	-	-	+	Did <u>Virginia</u> buy a car? (30c)
+	+	+	-	-	+	Did <u>Virginia</u> buy a car. (31c)

Figure 16

means that the speaker is requesting the hearer to provide him with new information as specified by the element to which +interrogative is attached. When it is attached to a disjunction, as in all the questions which we have so far considered, the speaker is saying that he wants the hearer to tell him which term of the disjunction is factually correct. +Interrogative can, however, occur in other places in semantic structure. In particular, it can occur within any of the major units (N, V, or A) in lieu of a lexical unit. In this position it indicates that the speaker wants the hearer to supply the missing lexical unit--to fill in the lexical gap:

(33) a. What did Virginia buy.

b. Who bought a car.

c. What did Virginia do.

In (33a) there is a gap in the object N. The hearer is expected to answer as in (34a), or with whatever lexical unit he knows to be correct. In (33b) the gap is in the subject N, and the speaker might answer as in (34b). In (33c) the gap is in the entire predicate, and (34c) would be a possible answer:

(34) a. Virginia bought a car.

b. Virginia bought a car.

c. Virginia bought a car.

In all the sentences of (34) the new information provided by the speaker is +emphatic. Phonologically, this is unambiguously evident in (34b) only. That a car is +emphatic in (34a) is again obscured by the homophony with the sentence which is unmarked for emphasis. The same is true of the +emphatic character of bought a car in (34c). Since the rise to highest pitch occurs on the phonological representation of only the last of several +emphatic major

units, (34c) is indistinguishable from (34a), which in turn is indistinguishable from the unmarked case. Nevertheless, all the sentences of (34) must contain +emphatic if they are answers to the questions of (33), and it is possible for everything except the +emphatic elements within them to be deleted:

(35) a. A car.

b. Virginia.

c. Bought a car.

None of the questions in (33) contains +emphatic, but +emphatic can be freely added to any of their lexical units, sometimes yielding sentences homophonous with those in (33) and sometimes yielding phonologically different sentences:

(36) What did Virginia buy.

Sentence (36) indicates that the speaker is focusing his request to have the object N lexically completed on the situation where Virginia did the buying. He does not care at the moment what other people bought (perhaps he already knows). In sentences like those of (33), however, it is impossible for the lexically impoverished major unit to contain +emphatic, presumably because there is no lexical unit--and no inflectional unit either--for +emphatic to be attached to. Sentence (37), which might seem

to be such a case, in fact contains another kind of semantic structure, one that will be discussed in a subsequent section:

(37) What did Virginia buy.

The semantic structure of (33a), then, is basically that sketched in Figure 17. The assignment of the selectional units -animate and -human to the object N will be discussed shortly. First we can consider the

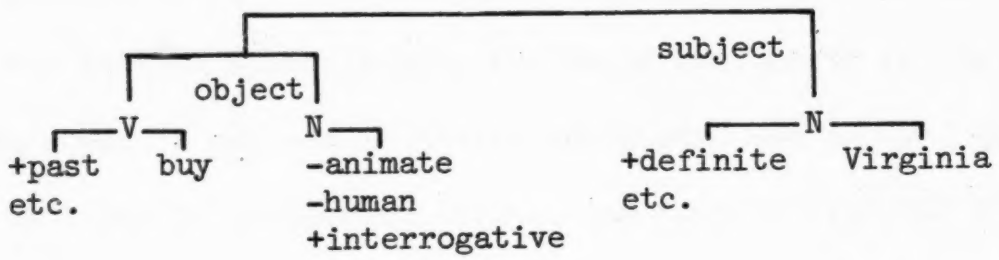


Figure 17

surface structure reflections of Figure 17. It is evident that the presence of +interrogative here triggers the splitting of the inflectional and lexical components of the V around the subject, just as was the case in disjunctive questions. In (33a) we find the surface structure sequence did Virginia buy, just as we did in (24), for example, and in both sentences we can view it as a representation of +interrogative. Furthermore, there is no question mark intonation in any of the sentences of (33). We should not expect one, since we

found it earlier to be a representation of disjunction. But the N which contains +interrogative also undergoes a special development. For one thing, in (33a) it shows up postsemantically as <u>what</u>. For another thing, this <u>what</u> is given a position at the beginning of the sentence, even before the <u>did</u> which is initial in (24). Evidently we must posit two effects of +interrogative on the linearization of these sentences. First, it causes the V to be split around the subject; second, it causes the major unit which contains it to move to the front of the sentence. (33b) makes it clear that these two processes must be applied in that order. The first alone, or applied after the second, would produce the order <u>did who buy</u>. It is the subsequent moving of the <u>who</u> to the beginning that causes the inflectional and lexical components of the V to be again juxtaposed in (33b). Figure 18 sketches two stages of linearization in the derivation of the surface structures of (33a) and (33b). On the left the V has been split around

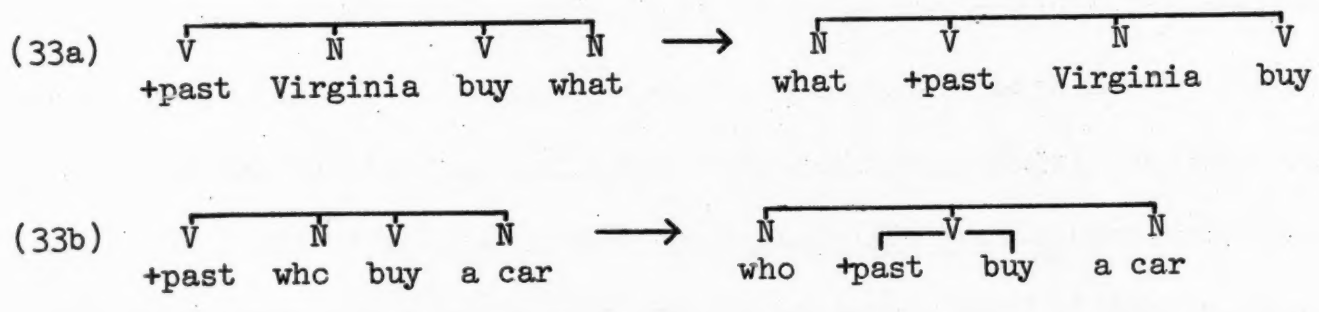


Figure 18

the subject N. On the right the N containing +interrogative has moved all the way to the left, so that in (33b) the components of the V are no longer split and its eventual symbolization becomes bought rather than did ... buy.

It is important to note that the term 'subject' in the above paragraph refers to the postsemantic subject, which may or may not be identical with the semantic one, as mentioned earlier in connection with disjunctive questions.

It is interesting to note also that in complex sentences like (38) the +interrogative word moves to the front of the entire sentence, not just to the front of its own clause. Furthermore, in sentence (38) it is the V of the main clause which is split by the subject of that clause, even though +interrogative is present semantically in the subordinate clause:

(38) What does Henry think Virginia bought.

In other words, the type of embedding illustrated in (38) permits a +interrogative lexical gap to occur in the embedded sentence. In such a case, the linearization processes associated with +interrogative apply over the domain of the entire complex sentence rather than simply over the domain of the embedded part.

Where and under what circumstances can the unit +interrogative be introduced into a major unit? In the most general terms, it can be added to either an N, a V, or an A, but it would not be sufficient to state this simply as follows:

(S10) X --→ +interrogative

(with X a cover symbol for N,V, and A), since there are much more limited conditions under which the addition of +interrogative is possible. We might begin by considering the circumstances under which +interrogative can be added to an N.

In the first place, any subject or object N will automatically be assigned certain selectional units by the V. Thus, the subject of buy will normally be +animate and the object -animate. On the other hand, the speaker has a choice over the introduction of other selectional units; for example, with many verbs he has a choice over whether a +animate subject or object is ±human (although buy requires a +human subject). However these units are arrived at--whether by assignment from the V or by the speaker's option--when an N is established as ±human, before any further selectional units are added and considerably before a lexical unit is reached, +interrogative may be introduced instead:

(S11) ±human $\dashrightarrow$ +interrogative

That is, as soon as an N is established as either -human or +human, it may become +interrogative. By convention it must be understood that further lexical development of the N is cut off at that point, so that, in particular, the normal introduction of a lexical unit is not achieved. Inflectional development of the N is also inhibited. In this way, something like the structure of the object N in Figure 17 is arrived at.

The reason why +interrogative is dependent on the presence of ±human is, of course, that the English language communicates just that much information about an N which has a lexical gap. The N is symbolized as what if it contains -human, and as who if it contains +human. (I will

overlook the process of government which leads to whom in one style of speech.) In (33) +human is assigned by the V to the subject, and -human to the object, so that the surface distinction between who and what is actually redundant; it does not add anything to what the hearer would know from the verb alone: that a +human N is expected as an answer when the subject is +interrogative, and a -human N when the object is +interrogative. (I assume that *Who did Virginia buy is deviant, both linguistically and culturally.) In (39), however, the speaker does provide additional information in this way--information that the hearer would not know from just the verb:

(39) a. What did you see.

b. Who did you see.

It is possible also for +interrogative to be added within an N which has considerably more lexical development than those just exemplified--one which, in fact, even contains a lexical unit. The sentences of (40) illustrate such a possibility:

(40) a. What color is it.

b. What street does Virginia live on.

c. What doctor did you see.

This device depends on the fact that some lexical units are included within others. Thus, for example, the lexical unit red is included within the lexical unit color, the unit Telegraph Avenue within street, and the unit Dr. Jones within doctor. If, then, an N has been developed lexically to the point where it contains, for example, color, +interrogative can still

be added to indicate that the speaker wants the hearer to provide a lexical unit that lies within the lexical unit color. That is what (40a) is requesting. The hearer is expected to answer in some such ways as (41):

(41) a. (It's) red.

b. (Virginia lives on) Telegraph Avenue.

c. (I saw) Dr. Jones.

Perhaps lexical units which contain other lexical units, like color, street, or doctor, should be regarded as having a common semantic characteristic which might be given a label such as superlexical. We could then provide for the introduction of +interrogative into an N which contains a superlexical unit, as illustrated in (40), by a rule such as the following:

(S12) superlexical $\longrightarrow$ +interrogative

Superlexical units can be +emphatic, as they are in (40), but they need not be:

(42) a. What color is it.

b. What street does Virginia live on.

c. What doctor did you see.

Postsemantically, it is clear from (40) that the N is represented by what (regardless of whether it is +human or -human) followed by the usual representation of the superlexical unit, for example color, street, or doctor. In a sense, the sentences of (33) illustrate a special case of the sentences of (40), the case in which no lexical unit at all is present, but only a selectional unit like +human or -human.

The sentences of (43) illustrate another situation:

(43) a. Which color is it.

b. Which street does Virginia live on.

c. Which doctor did you see.

In these sentences the superlexical unit is modified in such a way that its meaning encompasses only a +definite subset of the entire class which it would otherwise encompass. (Cf. Chafe 1968) It is as if the speaker were saying:

(44) a. Which color of the colors ...

b. Which street of the streets ...

c. Which doctor of the doctors ...

where the phrases of the colors, of the streets, and of the doctors limit the class which is under consideration to a +definite subclass, one which is already known from the context to both the speaker and the hearer. In this case, we find the same phonological representation as in (40), except that which appears instead of what.

Among the selectional units which occur within V are +stative and -stative. Verbs which are +stative include, for example, know, like, and 'adjectives' such as (be) tall. Verbs which are -stative include, for example, buy, eat, and sit down. If a V has been specified as -stative, +interrogative can be added instead of a lexical unit:

(S13) -stative $\dashrightarrow$ +interrogative

When this is done, the V cannot have an object. That is, a V which is

+interrogative behaves in the same way as a V that is -transitive. Such a V has a rather peculiar postsemantic representation. It acquires an empty surface structure object which is specified as -animate and which absorbs the unit +interrogative that was semantically in the V. The V itself takes on the empty lexical unit do. Thus we end up with a surface structure such as was illustrated in (33c):

(33c) What did Virginia do.

The basic semantic structure of this sentence is sketched in Figure 19. The hearer is expected to answer by filling in the V with a -stative

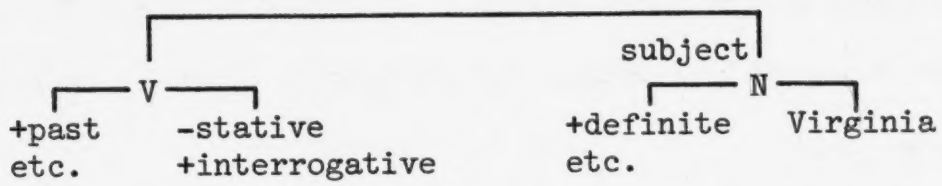


Figure 19

lexical unit; he may, at his option, also add an object and/or some attributive elements:

(45) a. She ate.

b. She sat down.

c. She bought a car.

d. She dropped a hammer on her toe.

He cannot answer with a +stative verb. The following are not answers to (33c):

(46) a. *She knew Sylvia.

b. *She liked anchovies.

c. *She was tall.

The peculiar postsemantic representation of Figure 19 is, of course, related to the parallel representation of a V which is subject to anaphoric pronominalization, as only a V containing -stative can be:

(47) a. Virginia sat down. She did it awkwardly.

b. Virginia bought a car. She did it impulsively.

c. Virginia knew Sylvia. *She did it very well.

Some of the selectional units which may occur within an A can be labeled place, time, manner, and reason. When any of these four has been introduced into an A, it may become +interrogative instead of going on to receive a lexical unit:

(S14) $\left\{\begin{array}{l}\text{place}\\ \text{time}\\ \text{manner}\\ \text{reason}\end{array}\right\} \rightarrow$ +interrogative

The combinations of each of these selectional units with +interrogative are symbolized respectively where, when, how, and why. Thus we arrive at sentences like:

(48) a. Where did Virginia buy a car.

b. When did Virginia buy a car.

c. How did Virginia buy a car.

d. Why did Virginia buy a car.

The hearer is expected to respond with answers like (49), where the lexical units missing within the A's in (48) have been filled in:

(49) a. She bought a car on Main Street.

b. She bought a car yesterday.

c. She bought a car with her own money.

d. She bought a car because she was tired of walking.

Unlike ±human, place, time, manner, and reason are semantic units to which +emphatic can be attached. Thus, it is quite possible for the elements where, when, how, and why in (48) to exhibit the high pitch which symbolizes the presence of +emphatic:

(50) Where did Virginia buy a car.

etc.

and still not belong to the sentence type, yet to be discussed, illustrated above by (37).

Rules (S11) through (S14), which introduce +interrogative into a major unit, can be combined into (S15):

$$(S15)\quad \left\{ \begin{array}{l} \pm\text{human} \\ \text{superlexical} \\ \text{-stative} \\ \text{place} \\ \text{time} \\ \text{manner} \\ \text{reason} \end{array} \right\}_{0} \rightarrow \quad \text{+interrogative}$$

The subscript '0' on the lower right side of the braces means that 'zero or more' of the units contained within the braces can be specified as +interrogative within the same sentence. In all the examples we have considered so far, +interrogative has occurred only once. The sentences of (51) show that this is not a necessary restriction:

(51) a. Who bought what.

b. Who did what.

c. Who bought what where.

If these sentences are understood as requests that all the lexical gaps be filled in, they are just like the sentences we have already considered except that they contain more than one lexical gap. In (51a) both the subject N and the object N are lexically impoverished. In (51b) it is the subject N and the V which lack a lexical unit. In (51c) it is the subject N, the object N, and an A. Only one of the +interrogative major units, if there are several, is moved to the beginning of the sentence during linearization. If both the subject and the object are +interrogative, it is always the subject which is moved. Sentence (52a), in which the object has been moved to the front, is impossible. (52b), in which the +interrogative element is +emphatic, is a different kind of sentence:

(52) a. *What did who buy.

b. What did who buy.

This discussion of questions which contain lexical gaps has been sketchy and incomplete. To carry it further would necessitate excursions into related areas of English semantic structure which are better avoided in a paper this size. For example, a discussion of (53):

(53) Whose car did Virginia buy.

would involve a discussion of the semantic structure underlying possessives, and that in turn would open up some larger issues. It is clear, of course, that (53) anticipates an answer like:

(54) (She bought) Sylvia's (car).

so that +interrogative must be introducible semantically into the kind of N which leads to this surface structure form.

A final word should be said regarding the occurrence of +negative in questions of this sort. It is found frequently in sentences like the following:

(55) a. What didn't Virginia see.

b. Who didn't see the gorilla.

which might be uttered in connection with a visit of Virginia (55a) or of a group of children (55b) to the zoo. At first glance, (56) may look impossible:

(56) What didn't Virginia buy.

but might be asked in an appropriate context. For example, it might have been discovered that the number of items on the shopping list does not coincide with the number of items in the bag. In general, when the questioner is concentrating on having a lexical unit supplied to him by the hearer, he makes the request in a -negative sentence. There seems, however, to be no hard and fast requirement that he do so, as the sentences above indicate.

The issue is slightly confused by the existence of another kind of sentence:

(57) What didn't Virginia buy.

As a 'rhetorical question', this is really not a question at all, since

it is not designed to produce a linguistic response from the hearer. Rather, it is an exclamation intended to convey the meaning that Virginia bought an unusually large number of things. A different semantic structure needs to be posited, but one which happens to lead to a surface structure similar to that of (56).

Confirmative Questions

Although questions like (58a,b) or (58c,d) have sometimes been described as 'different ways of saying the same thing', they are in fact semantically different:

(58) a. Did Virginia buy <u>a car</u>?

b. Virginia bought <u>a car</u>?

c. Did you go to <u>Chicago</u>?

d. You went to <u>Chicago</u>?

In (58a), a disjunctive question, the speaker is giving the hearer two alternatives to choose from: 'Either Virginia bought a car or she didn't. Tell me which.' In (58b) the speaker is saying, in effect, that he understands or has reason to believe that Virginia bought a car, and he wants the hearer to confirm the truth of it. Similarly, in (58d) the speaker is requesting confirmation of his belief that the hearer went to Chicago. In the disjunctive question (58c), on the other hand, he is asking whether or not this is the case. I shall say that the V in (58b,d) contains the semantic unit +confirmative, with the meaning 'confirm that the rest of this sentence is true'. The speaker is expected to answer (58b) with something like (59a). He may, of course, disconfirm

the speaker's belief, as in (59b), but that is not what the speaker anticipates when he utters (58b):

(59) a. Yes. (She bought a car.)

b. No. (She didn't buy a car.)

Confirmative questions are in complementary distribution with questions that contain +interrogative. The unit +confirmative can be introduced into semantic structure by a rule like the following:

(S16) V ⟶ +confirmative/-interrogative

where it is understood that +confirmative cannot occur if +interrogative is present anywhere in the sentence. (This is only one of several restrictions that would have to be specified in a more complete description.) It is evident from (58b,d) that +confirmative is symbolized by the question mark intonation. (So far, then, we have two sources for this kind of intonation: disjunction and +confirmative.)

There are three ways in which +confirmative can be further modified; they can be illustrated with the sentences of (60):

(60) a. Virginia didn't buy a car?

b. Virginia bought a car. didn't she?

c. Virginia didn't buy a car. did she?

d. Virginia bought a car. didn't she.

e. Virginia didn't buy a car. did she.

In (60a) the speaker has just been surprised by evidence (very likely something the hearer just said) that Virginia didn't buy a car; previously

he had thought that she did buy one. I shall say that this sentence contains +surprised. The speaker anticipates that (60a) will be confirmed with the answer no. In (60b,c) the speaker is requesting confirmation of his knowledge, but he has some doubt that he will receive it. We can call the semantic unit in this sentence +doubtful. To confirm (60b) the hearer would answer yes; to confirm (60c), he would answer no. In (60d,e) the speaker is confident that his knowledge will be confirmed. He is sure he is right, but wants to have the satisfaction of being told that he is. These sentences can be said to contain +confident. It is therefore possible for +confirmative to be further specified in one of three ways:

(S17) $$+\text{confirmative} \rightarrow \left\{ \begin{array}{l} +\text{surprised}/+\text{negative} \\ +\text{doubtful} \\ +\text{confident} \end{array} \right\}$$

It may be noted that confirmative questions which contain -negative--(60b,d) as well as (58b,d)--are confirmed with the answer yes. Confirmative questions which contain +negative--(60a,c,e)--are confirmed with the answer no.

We have already met +surprised before, and the two sentences which contain it may be compared:

(29) Didn't Virginia buy a car?

(60a) Virginia didn't buy a car?

In sentence (29) +surprised was added to a +interrogative disjunction. The speaker is requesting affirmation or negation, but is saying he would have expected affirmation except that recent evidence makes him expect

negation. Unlike (29), which contains both +negative and -negative, (60a) contains only +negative. The speaker is requesting the hearer to confirm this negative sentence by saying no. At the same time, however, he is indicating through the use of +surprised that is is only recent evidence which has led him to this negative conclusion, and that he earlier thought the opposite.

The question mark at the end of (60b,c) calls for clarification. Up to now both the question mark and the period have been used only at the ends of clauses in which at least one word has been underlined. The question mark has meant that the pitch has remained high from the strongest stressed syllable of the underlined word to the point where the question mark is located. When there is no underlined word preceding it, as in (60b,c), the question mark means that the pitch before it rises from a low level at the beginning of the clause to an intermediate level at the end. Thus, she at the end of (60b,c) is lower than car, but higher than didn't or did. In these two sentences +doubtful is symbolized by a so-called 'tag'. That is, (60b,c) differ from (58b) and (60a) by the postsemantic addition, at the end, of what looks like the beginning of a disjunctive question: the empty verb do with the appropriate tense (and in (60b) +negative), followed by the subject, which is necessarily pronominalized. It is well known that a tag contains +negative if the preceding V is -negative, and vice versa. A sentence in which the tag does not follow this statement, such as:

(61) Virginia bought a car. did she?

is not a question, but a way of expressing either disbelief or disapproval

(the sentence is, in fact, ambiguous as between these two). A tag is preceded by the period intonation at the end of the preceding portion of the sentence, and the +doubtful tags of (60b,c) themselves end in the question mark intonation. Nothing in the +doubtful tag is +emphatic.

The unit +confident which is present in (60d,e) is represented postsemantically by a tag also. In this case, however, the do of the tag is +emphatic and the tag itself ends in the period intonation. These two postsemantic factors differentiate +confident from +doubtful.

Figure 20 is a summary of the several types of +confirmative questions which have been discussed.

It is possible for +emphatic to be added to one or another of the lexical units in a +confirmative question. If it is added to Virginia, for example, we find results like the following:

(62) a. Virginia bought a car?

b. Virginia didn't buy a car?

c. Virginia bought a car. didn't she?

d. Virginia bought a car. didn't she.

The following rather odd sentence:

(63) Didn't Virginia buy a car.

appears from its surface structure to be a disjunctive question which is also +surprised, and in which Virginia is both +emphatic and +item. Semantically, however, it is no such thing. If anything, it appears to be nothing more than an optional postsemantic variant of (62d).

A word should be said concerning the occurrence in confirmative

Virginia bought a car? (58b)

Virginia didn't buy a car? (60a)

Virginia bought a car. didn't she? (60b)

Virginia didn't buy a car. did she? (60c)

Virginia bought a car. didn't she. (60d)

Virginia didn't buy a car. did she. (60e)

	V:	V:	V	V	V	V
negative	-	+	-	+	-	+
surprised	-	+	-	-	-	-
doubtful	-	-	+	+	-	-
confident	-	-	-	-	+	+

Figure 20

questions of sentential adverbs which convey the speaker's certainty regarding the truth of the remainder of the sentence, adverbs like certainly, of course, or surely. Such adverbs are not found in disjunctive questions (cf. Katz and Postal 1964:87-8):

(64) a. *Surely did Virginia buy a car?

b. *Did Virginia surely buy a car?

since, presumably, the speaker cannot express certainty about something

whose truth he is trying to determine. In a lexical gap question, too, the speaker is seeking new information, and cannot be certain about information he does not yet have. Hence, anything like (65) is also ruled out:

(65) a. *Surely what did Virginia buy.

b. *What did Virginia surely buy.

With a special intonational result, however, these adverbs of certainty can occur with a confirmative question, in which case the speaker is expressing a certainty about the information he already has, even though he may be either doubtful or confident that it will be confirmed:

(66) a. Surely Virginia bought a car;?

b. Surely Virginia bought a car; didn't she?

c. Surely Virginia bought a car; didn't she.

The semicolon is an ad hoc device to provide an indication of another intonational pattern, a fall to an intermediate pitch immediately after the preceding highest pitch is reached. This 'semicolon intonation' appears to be a phonological result of the encounter between an adverb of certainty and the unit +confirmative. When it is itself followed by the question mark intonation symbolizing +confirmative, as in (66a), there is a subsequent small rise in pitch. This rise seems to be absent in (66b,c), where the question mark intonation has been obliterated, as usual, by the following tag.

Echo Questions

The last type of question we shall consider can be illustrated in its simplest form by the following sentences:

(67) a. Virginia bought a car?

b. Did Virginia buy a car?

c. What did Virginia buy?

Each of these sentences is to be understood as something which is said immediately after the person questioned has said one of the following, respectively:

(68) a. Virginia bought a car.

b. Did Virginia buy a car?

c. What did Virginia buy.

In each case the speaker of one of the sentences in (67) is repeating what the other person has said to make sure that he has received it correctly. I shall say that the sentences of (67) contain the semantic unit +echo, whose meaning is that the speaker seeks confirmation that the remainder of the sentence is a correct rendition of what was just said. This unit can be introduced into semantic structure with a rule like the following:

(S18) V $\longrightarrow$ +echo

When this option is chosen, the sentence which contains +echo is understood to be, in all other respects (with one important kind of exception to be noted shortly) an exact repetition of a sentence just uttered by the

person questioned. The latter sentence may be called the 'model'. Thus, we find a situation like that illustrated in Figure 21, where the sentence on the right repeats everything in the model sentence on the left, but

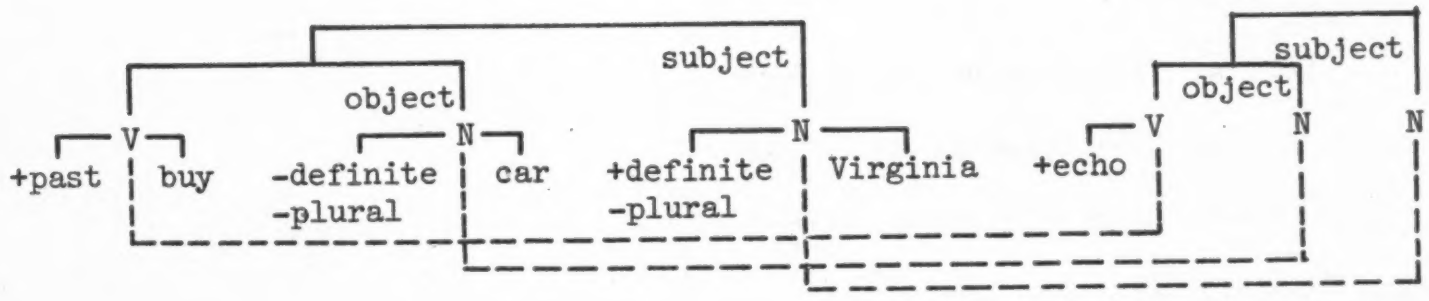


Figure 21

contains +echo in addition. The two sentences are, of course, spoken by different people. The sentence on the left may itself be a disjunctive question, as in (67b), or a sentence with a lexical gap, as in (67c).

As with +confirmative, the phonological realization of +echo is the question mark intonation. (This fact is obscured in (67b), since the model sentence ended with the same intonation.) There is, however, a distinct difference between an echo question and a confirmative one. While both types request confirmation from the hearer, a confirmative question asks confirmation of some tentative part of the speaker's knowledge, a piece of knowledge which he may have arrived at in a variety of ways. An echo question merely seeks confirmation of the proper reception of an immediately preceding linguistic utterance. Thus, (67a) is homophonous with the confirmative question (58b). But while (58b) asks confirmation of something the speaker believes to be the case, (67a) asks confirmation that the speaker heard sentence (68a) correctly. Actually, the confirmation which is then provided may be quite minimal.

At one extreme, the other person could respond to (67a) by repeating all of (68a), but he could also say yes, or simply grunt or nod his head. The speaker who utters the echo question (67a) might, however, accept no answer at all as a confirmation, and simply go on to say something else. An echo question, in fact, is often a way by which the speaker can stall for time while he thinks of what to say next:

(69) a. Virginia bought a car? Well, I guess she needed one.

b. Did Virginia buy a car? Yes she did.

c. What did Virginia buy? She bought a car.

Both sentences in each pair are spoken by the same person. After the first sentence in each pair, the hearer may or may not provide some overt kind of confirmation. Of course, particularly when there is noise of some kind in the situation, the hearer may answer by disconfirming the questioner's reception:

(70) No. I said Virginia bought a cart.

Here cart is semantically +emphatic, as was also, presumably, car in (67a), if that was the part of the sentence the speaker was uncertain he heard correctly.

A particularly interesting possibility in an echo question is that it may differ from the model sentence through its own introduction of a lexical gap. That is, a major unit in the echo question may contain +interrogative, and thus be lexically deficient, when the same unit in the model sentence was lexically complete. This fact clearly separates

echo questions from confirmatives, for the latter cannot contain +interrogative at all, as specified in (S16). The following are examples of echo questions which contain a lexical gap not present in the model:

(71) a. Virginia bought what?

b. Who bought a car?

c. Virginia did what?

d. Did Virginia buy what?

e. Who bought what?

The meaning of +echo as described above must be reworded slightly to accommodate such sentences. If the speaker repeats what the other person said in its entirety, as in (67), he is merely seeking confirmation of his reception. If, as in (71), he repeats what the other person said but introduces into it a lexical gap through the use of +interrogative, he is indicating that the lexical unit in that position was not received at all, was blurred in its reception, or was so incredible that the questioner wants to have it supplied again. We might say, then, that the meaning of +echo is, 'I'm repeating what you just said. Confirm the correctness of my reception or, if so specified through +interrogative, supply the information which I did not receive properly.'

Apparently +interrogative can be introduced into a major unit in a +echo question under the same conditions which allow its introduction into a -echo sentence, except that in a +echo sentence only one new occurrence of +interrogative can be introduced. Rule (S19) differs from (S15) only in this last respect:

(S19) $$\left\{\begin{array}{l}\pm\text{human}\\ \text{superlexical}\\ \text{-stative}\\ \text{place}\\ \text{time}\\ \text{manner}\\ \text{reason}\end{array}\right\}^{1}_{0} \longrightarrow \text{+interrogative/+echo}$$

The '1' to the upper right of the braces indicates that there is a limit of one to the number of times this rule can be applied within any one sentence. It may apply either once or not at all. The earlier rule (S15) requires the additional specification that it applies only in a -echo sentence. An echo question may appear to contain more than one occurrence of +interrogative, as in (71e). The who in that sentence, however, resulted from the application of (S15) in the model sentence, and is simply repeated in the echo, whereas the what is newly introduced into the echo by (S19). It is this latter process which can occur no more than once.

In the earlier discussion of lexical gap questions, it was noted that (barring the presence of a superlexical unit) the major unit which contains +interrogative cannot also contain +emphatic, presumably because there is no lexical unit for +emphatic to be attached to. The sentences of (71) illustrate, however, that the situation is exactly reversed here, that a major unit which contains +interrogative newly introduced within an echo question by (S19) must also contain +emphatic. This is unambiguously evident from the phonology only in sentence (71b), but semantically it is quite clear that the what at the ends of the other sentences represents a major unit which does contain +emphatic. This restriction might be introduced by revising (S19) to read as follows:

(S20) $$\left\{\begin{array}{l}\pm\text{human}\\ \text{superlexical}\\ \text{-stative}\\ \text{place}\\ \text{time}\\ \text{manner}\\ \text{reason}\end{array}\right\}^{1}_{0} \longrightarrow \left[\begin{array}{l}\text{+interrogative}\\ \text{+emphatic}\end{array}\right] / \text{+echo}$$

The reason why +emphatic occurs obligatorily with +interrogative in this case appears to be that some lexical unit already uttered (or, as we shall see, implied) by the other person is at issue, and the speaker is focusing his attention on this already communicated, but inadequately communicated item. The hearer, of course, is expected to respond by supplying the requested lexical unit in +emphatic form:

(72) a. Virginia bought a car.

b. Virginia bought a car.

c. Virginia bought a car.

d. Did Virginia buy a car.

e. Who bought a car.

The sentences of (72) are possible answers to the lexically deficient echo questions of (71). Sentence (72d) suggests that the answer to an echo question containing +interrogative always ends with the period intonation.

A major unit which is +interrogative and +emphatic within an echo question, as in (66), can be further specified as +unknown. The sentences of (73) illustrate this possibility:

(73) a. Virginia bought what.

b. Who bought a car.

c. Virginia did what.

d. Did Virginia buy what.

e. Who bought what.

Through a comparison of these sentences with those of (71), the meaning of +unknown should be clear. In (71) the speaker has simply not heard clearly, or been able to accept, the lexical unit provided by the other person. That lexical unit was, however, transmitted; there was simply some noise in the transmission process. In (73) the lexical unit was not transmitted at all. The other person assumed that the speaker would know what it was, but the speaker did not. The sentences of (73) might, for example, be uttered after such sentences as the following:

(74) a. Virginia bought it.

b. She bought a car.

c. Virginia did it.

d. Did Virginia buy it?

e. Who bought it.

In each of these sentences a pronominalization has taken place, based on the assumption that the other party knows the lexical unit involved. If the other party responds as in (73), it is clear that he does not have such knowledge, that the assumption was mistaken. It is the presence of the unit I have called +unknown which conveys this information.

One way to introduce +unknown into such a semantic structure is through a rule like (S21):

(S21) $\begin{bmatrix} +\text{interrogative} \\ +\text{emphatic} \end{bmatrix} \rightarrow +\text{unknown}$

It is only within an echo question that the combination of +interrogative with +emphatic can occur. Its further specification as +unknown is then an available option. The symbolization of +unknown is through a drop in pitch, as noted here by the period at the end of the sentences in (73). This intonation overrides the question mark intonation otherwise associated with an echo sentence. It is worth noting that +unknown is symbolized in precisely the same way as the unit +item which may be present in a disjunctive question:

(31c) Did Virginia buy a car.

One might consider the possibility that the two units are identical, but it seems unlikely.

I have postponed until this point a full discussion of the post-semantic consequences of +interrogative in an echo question. In the section on questions with lexical gaps, we noted that +interrogative within a major unit has several postsemantic effects. One is the creation of a 'wh' word like what, who, where, how, etc. This effect is present in echo questions also. Another is the moving of the item containing +interrogative to the beginning of the sentence. This effect is absent in (71) and (73), where the linear order of the sentence on which the echo sentence is modeled is preserved. This preservation of the order of the model sentence also inhibits the other effect which +interrogative usually has on linearization, the splitting of the inflectional and lexical components of the V on either side of the subject; such splitting

is also absent in (71) and (73). The splitting which has taken place in (71d) and (73d) reflects that which was present in the model, and has nothing to do with the echo sentence per se.

How then do we account for the sentences of (75):

(75) a. What did Virginia buy?

b. What did Virginia buy.

It seems to me that these sentences have the same semantic structures as (71a) and (73a) respectively. They indicate, I think, that the placement of a +interrogative item at the front of a sentence and the splitting of the V are only optionally suspended in the postsemantic development of an echo question, as in (71a) and (73a), but that the speaker may just as well choose to apply these processes, as in (75). The sentences of (75) show all the expected postsemantic effects of +interrogative; in (71a) and (73a) the effects on linearization have been inhibited by the presence of +echo, which characteristically produces a word order identical with that of the model sentence.

One last point is worth mentioning. Sentences (76b,d) are echo questions modeled on (76a,c) respectively:

(76) a. I said Virginia bought a car.

b. { You said Virginia bought what?
   { What did you say Virginia bought?

c. He thought Virginia bought a car.

d. { He thought Virginia bought what?
   { What did he think Virginia bought?

It may be noted in passing that the alternative surface structures listed second in (76b,d) show again the effects which +interrogative has on the main clause of a complex sentence. even thought it is present in the subordinate clause. We noted the same phenomenon in connection with ordinary lexical gap questions that were complex. These sentences were cited, however, to make the point that both versions of (76b) are ambiguous, for they might also be echos of (77):

(77) Virginia bought a car.

If the other person has just said (77), the speaker may utter (76b) instead of the slightly simpler (71a) or (75a):

(71a) Virginia bought what?

(75a) What did Virginia buy?

In such a case, you said (or did you say) is not a repetition of something contained in the preceding sentence, but something added by the speaker of (76b). The rest of the sentence, however, is still an echo. It seems to be the case that the verb say will support a sentential object whose V is +echo. It is perhaps the only verb that will do so. (76b) differs from (71a) or (75a) only in making it a little more explicit that the speaker is repeating something which the hearer just said. Interestingly enough, say will not allow as its object an echo sentence containing +unknown. (78b) is impossible as a sequel to (78a):

(78) a. Virginia bought it.

b. { *You said Virginia bought what.
   { *What did you say Virginia bought.

It is evident that (78b) is ruled out here because the presence of +unknown means that the other person did not say what it was Virginia bought. (78b) implies that he did say what it was. The same sentence would be quite appropriate in the context already illustrated in (76), where all of (79b) is an echo:

(79) a. I said Virginia bought it.

b. { You said Virginia bought what.
   { What did you say Virginia bought.

Concerning the verb say, then, we can describe it as the only verb which will take an echo sentence as its object, but we must add that even say does so defectively, for it will not allow its echo object to contain +unknown.

Summary

This paper has considered several types of English sentences which are uttered for the purpose of eliciting a linguistic response from the hearer and which, on that basis, can be classed as questions. A semantic unit +interrogative, whose meaning is that the speaker requests new information from the hearer, was seen to play a role in more than one type of question. It may be attached to a sentential disjunction, in which case the speaker is requesting the hearer to tell him which of the disjuncts is factually correct. A variety of this type of question is one in which the disjuncts differ only by the ±negative distinction, and the ordinary 'yes-no' question was seen as a subvariety here. (Cf. Katz and Postal's similar view: 'These facts suggest that yes-no questions involve the

request for a specification of one of two alternatives that are in fact disjunctions of sentences' (1964:100). It is interesting also to compare the 'A-not-A' questions described for Chinese; e.g. Wang 1965.) The same +interrogative unit can also be attached to an N, V, or A, in which case a lexical unit is missing and the request is that the hearer supply that unit. What is often called a 'wh' question is formed in this way. Rather than +interrogative, a question may contain the unit +confirmative; it is then not a request for new information, but for confirmation of some more or less tentative knowledge which the speaker already has. Last to be discussed were questions containing the unit +echo. Sentences of this kind were seen as repetitions of immediately preceding sentences uttered by the other person, repetitions intended primarily as checks on the correctness of reception. The repetition may be incomplete; it is possible for it to contain a lexical gap, with the unit +interrogative present to indicate that the speaker wishes the gap filled in with new information.

This paper has presented a number of semantic observations which (subject to possible revision) must surely be accounted for in a description of English that pretends to any kind of adequacy. A number of tentative and loosely formulated rules have been suggested as possible ways of incorporating these considerations into a formalization of English semantic structure. From a generative semantic point of view the structures generated by such rules are gradually converted into surface structures through a series of postsemantic processes. These processes have been described here in wholly discursive terms, but to state them more formally is not difficult. I would like to think that the paper has shown that a

generative semantic approach to English questions is possible. The issue which remains is whether it is preferable to a Chomskyan generative syntax approach. The latter would start by generating 'deep' structures at some point between semantic and surface structures, and would move from there to semantic structure through a reverse process of semantic 'interpretation'. What is there in the nature of language that would lead one to advocate this seemingly roundabout model? The answer may well be 'nothing'. The approach is simply a carryover from the earlier, asemantic 'structuralist' model. Here I would like simply to point out that the generative syntax view requires the delimitation of some autonomous level intermediate between semantic and surface structures, and, if such a level can be delimited in anything but an ad hoc way, a justification for regarding it as the place where utterances are initially generated--as the ultimate source of language structure, both semantic and phonetic. The characteristics which such a level should exhibit have never been clear, and have varied considerably over the years. This discussion of questions has not, I think, shown any reason why a level of this kind should be hypothesized.

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